



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/000,230      | 11/30/2001  | Javad Razavilar      | 70688               | 9235             |

22242 7590 03/26/2004

FITCH EVEN TABIN AND FLANNERY  
120 SOUTH LA SALLE STREET  
SUITE 1600  
CHICAGO, IL 60603-3406

EXAMINER

WEST, LEWIS G

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2682

DATE MAILED: 03/26/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/000,230

Applicant(s)

RAZAVILAR ET AL.

Examiner

Lewis G. West

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-17 and 19-31 is/are rejected.
- 7) ☒ Claim(s) 3,5 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Information Disclosure Statement***

1. The information disclosure statement filed July 17, 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. The reference "A Simple Distributed Autonomous Power Control Algorithm and its Convergence" is incomplete, and can therefore not be considered in its entirety. The reference has been placed in the application file, but the information referred to therein has not been considered. The other references listed have been considered.

***Drawings***

2. New corrected drawings are required in this application because of poor line quality, especially poorly drafted reference characters and lead lines. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

Art Unit: 2682

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1, 2, 4, 6-17 and 19-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Jiang (US 6,535,723).

Regarding claim 1, Jiang discloses a method of rate and power control in a communication system comprising: assigning a target channel condition metric to be met at a first communication terminal for signaling received from each of one or more remote communication terminals of the communication system, each communication terminal supporting a plurality of rates and a plurality of transmit power levels, each target channel condition metric based upon the type of service supported by each of the one or more remote communication terminals; (col. 4 lines 32-64) receiving a signal at the first communication terminal from each of the one or more remote communication terminals; and adjusting a respective target channel condition metric assigned for a respective one of the one or more remote communication terminals in response to signal information generated from the received signal from the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 2, Jiang discloses the method of Claim 1 further comprising determining a respective transmit power level and a respective rate that will satisfy the target channel condition metric for each of the one or more remote communication terminals, the respective transmit power and the respective rate to be used by a respective one of the one or more remote communication terminals for a respective subsequent signal to be transmitted from the respective

Art Unit: 2682

one of the one or more remote communication terminals to the first communication terminal.

(col. 6 lines 4-18)

Regarding claim 4, Jiang discloses the method of Claim 2 further comprising transmitting the respective transmit power level and the respective rate for each of the one or a more remote communication terminals to the respective one of the one or more remote communication terminals. (Col. 4 lines 32-64) (Col. 5 line 21-col. 6 line 19)

Regarding claim 6, Jiang discloses the method of Claim 2 wherein the adjusting step comprises reducing the respective target channel condition metric assigned for the respective one of the one or more remote communication terminals in the event the respective transmit power level exceeds a maximum transmit power of the respective one of the one or more remote communication terminals. (Col. 4 lines 32-64) (Col. 5 line 21-col. 6 line 19)

Regarding claim 7, Jiang discloses the method of Claim 2 wherein the adjusting and determining steps are performed at the first communication terminal, wherein the first communication terminal and the one or more remote communication terminals comprise a cell within a communication system comprising a plurality of cells, the adjusting and determining steps performed independent of rate and power adjustments made in others of the plurality of cells in the communication system, wherein a distributed rate and power control algorithm is provided. (Col. 4 lines 32-64) (Col. 5 line 21-col. 6 line 19)

Regarding claim 8, Jiang discloses the method of Claim 1 wherein the adjusting comprises adjusting the respective target channel condition metric in response to the signal information generated from the received signal from the respective one of the one or more remote communication terminals, the signal information comprising one or more of a group

Art Unit: 2682

consisting of: a measured channel condition metric corresponding to the received signal, a measured received signal strength of the received signal, and the results of an error detection process performed on the received signal. (col. 5 line 21-col. 6 line 19)

Regarding claim 9, Jiang discloses the method of Claim 1 wherein the adjusting step comprises reducing the respective target channel condition metric in the event a measured received signal strength of the received signal from the respective one of the one or more remote communication terminals exceeds a threshold received signal strength of the first communication terminal. (col. 5 line 21-col. 6 line 19)

Regarding claim 10, Jiang discloses the method of Claim 9 further comprising: measuring a channel condition metric corresponding to each received signal; and measuring a received signal strength for each received signal. (col. 5 line 21-col. 6 line 19)

Regarding claim 11, Jiang discloses the method of Claim 1 wherein the adjusting step comprises reducing the respective target channel condition metric in the event an error detection process indicates that there is an error in the received signal from the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 12, Jiang discloses the method of Claim 1 wherein the adjusting step comprises increasing the respective target channel condition metric in the event an error detection process indicates that there are no errors in the received signal from the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 13, Jiang discloses the method of Claim 1 wherein at least two of the one or more remote communication terminals supports a different one of a plurality of types of service. (Col. 4 lines 21-31)

Regarding claim 14, Jiang discloses a rate and power control device for a communication terminal of a communication system comprising: a rate and power control module for performing the following steps: obtaining an assigned target channel condition metric to be met at a first communication terminal for a signal received from each of one or more remote communication terminals, each communication terminal supporting a plurality of rates and a plurality of transmit power levels, the assigned target channel condition metric based upon the type of service supported by each of the one or more remote communication terminals; and adjusting a respective assigned target channel metric for a respective one of the one or more of remote communication terminals in response to signal information generated from the signal received from the respective one of the one or more remote communication terminals. (col. 4 lines 32-64) (col. 5 line 21-col. 6 line 19)

Regarding claim 15, Jiang discloses the device of Claim 14 further comprising an integrated circuit device, the rate and power control module implemented within the integrated circuit device. (col. 5 line 21-col. 6 line 19)

Regarding claim 16, Jiang discloses the device of Claim 14 wherein the rate and power control module additionally performs the following step: determining a respective transmit power level and a respective rate that will satisfy the assigned target channel condition metric for each of the one or more remote communication terminals, the respective transmit power and the respective rate to be used by a respective one of the one or more remote communication terminals for a respective subsequent signal to be transmitted from the respective one of the one or more remote communication terminals to the first communication terminal. (Col. 6 lines 4-19)

Regarding claim 17, Jiang discloses the device of Claim 16 wherein a respective signal received from a respective one of the one or more remote communication terminals was transmitted using a respective one of the plurality of rates and wherein the respective rate that satisfies a respective target channel condition metric comprises a different one of the plurality of rates, wherein the rate and power control module additionally performs the following step: measuring a channel condition metric corresponding to each received signal; and setting the respective rate to the respective one of the plurality of rates rather than the different one of the plurality of rates, in the event the measured channel condition metric for the respective received signal is within a hysteresis threshold of the target channel condition metric and in the event the system has been transmitting using the respective one of the plurality of rates for less than a specified number of iterations of the receiving and determining steps. (col. 5 line 21-col. 6 line 19)

Regarding claim 19, Jiang discloses the device of Claim 16 further comprising a transmitter coupled to the rate and power control module for transmitting the respective transmit power level and the respective rate for each of the one or more remote communication terminals to the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 20, Jiang discloses the device of Claim 16 wherein the adjusting step performed by the rate and power control module comprises: reducing the respective assigned target channel condition metric for the respective one of the one or more remote communication terminals in the event the respective transmit power level exceeds a maximum transmit power of



Art Unit: 2682

the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 21, Jiang discloses the device of Claim 16 wherein the adjusting and determining steps performed by the rate and power control module are performed at the first communication terminal, wherein the first communication terminal and the one or more remote communication terminals comprise a cell within a communication system comprising a plurality of cells, wherein the rate and power control module performs the adjusting and determining steps independent of rate and power adjustments made in others of the plurality of cells in the communication system, wherein a distributed rate and power control algorithm is provided. (col. 5 line 21-col. 6 line 19)

Regarding claim 22, Jiang discloses the device of Claim 14 further comprising a receiver of the first communication terminal, the rate and power control module coupled to the receiver.

Regarding claim 23, Jiang discloses the device of Claim 14 wherein the adjusting step performed by the rate and power control module comprises: adjusting the respective assigned target channel condition metric in response to the signal information generated from the received signal from the respective one of the one or more remote communication terminals, the signal information comprising one or more of a group consisting of: a measured channel condition metric corresponding to the received signal, a measured received signal strength of the received signal, and the results of an error detection process performed on the received signal. (col. 5 line 21-col. 6 line 19)

Regarding claim 24, Jiang discloses the device of Claim 14 wherein the adjusting step performed by the rate and power control module comprises: reducing the respective assigned

Art Unit: 2682

target channel condition metric in the event a measured received signal strength of the received signal from the respective one of the one or more remote communication terminals exceeds a threshold received signal strength of the first communication terminal. (col. 5 line 21-col. 6 line 19)

Regarding claim 25, Jiang discloses the device of Claim 24 further comprising: a channel condition metric estimation module coupled to the rate and power control module for measuring a channel condition metric corresponding to each received signal and for measuring a received signal strength for each received signal. (col. 5 line 21-col. 6 line 19)

Regarding claim 26, Jiang discloses the device of Claim 14 wherein the adjusting step performed by the rate and power control module comprises: reducing the respective assigned target channel condition metric in the event an error detection process indicates that there is an error in the received signal from the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 27, Jiang discloses the device of Claim 14 wherein the adjusting step performed by the rate and power control module comprises: increasing the respective assigned target channel condition metric in the event an error detection process indicates that there are no errors in the received signal from the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 28, Jiang discloses the device of Claim 14 wherein at least two of the one or more remote communication terminals supports a different one of a plurality of types of service. (Col. 4 lines 21-31)

Regarding claim 29, Jiang discloses a rate and power control system in a communication system comprising: means for assigning a target channel condition metric to be met at a first communication terminal for signaling received from each of one or more remote communication terminals of the communication system, each communication terminal supporting a plurality of rates and a plurality of transmit power levels, each target channel condition metric based upon the type of service supported by each of the one or more remote communication terminals, means for receiving a signal at the first communication terminal from each of the one or more remote communication terminals; and means for adjusting a respective target channel condition metric assigned for a respective one of the one or more remote communication terminals in response to signal information generated from the received signal from the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

Regarding claim 30, Jiang discloses the system of Claim 29 further comprising means for determining a respective transmit power level and a respective rate that will satisfy the target channel condition metric for each of the one or more remote communication terminals, the respective transmit power and the respective rate to be used by a respective one of the one or more remote communication terminals for a respective subsequent signal to be transmitted from the respective one of the one or more remote communication terminals to the first communication terminal. (col. 5 line 21-col. 6 line 19)

Regarding claim 31, Jiang discloses the system of Claim 30 further comprising means for transmitting the respective transmit power level and the respective rate for each of the one or more remote communication terminals to the respective one of the one or more remote communication terminals. (col. 5 line 21-col. 6 line 19)

*Allowable Subject Matter*

5. Claims 3, 5 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the prior art discloses the method as in claim 2, but does not expressly further disclose wherein a respective signal received from a respective one of the one or more remote communication terminals was transmitted using a respective one of the plurality of rates and wherein the respective rate that satisfies a respective target channel condition metric comprises a different one of the plurality of rates, the method further comprising: measuring a channel condition metric corresponding to each received signal; and setting the respective rate to the respective one of the plurality of rates rather than the different one of the plurality of rates, in the event the measured channel condition metric for the respective received signal is within a hysteresis threshold of the target channel condition metric and in the event the system has been transmitting using the respective one of the plurality of rates for less than a specified number of iterations of the receiving and determining steps. When incorporating all the limitations of the base claim and any intervening claims, none of the prior art discloses the features as claimed.

Regarding claim 5, the prior discloses the method of Claim 2, but does not discloses a determining step that involves solving for the specific complex equation set forth in claim 5. When incorporating all the limitations of the base claim and any intervening claims, none of the prior art discloses the features as claimed.

Art Unit: 2682

Regarding claim 18, the prior discloses the method of Claim 16, but does not disclose a determining step that involves solving for the specific complex equation set forth in claim 5.

When incorporating all the limitations of the base claim and any intervening claims, none of the prior art discloses the features as claimed.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ue et al (EP 0 986 282 A1), Ue et al (US 6,366,763), Gilhousen et al (US 5,603,096), Tiedemann, Jr et al (US 5,987,326), and English et al (US 5,528,593) are all relevant to the present invention as systems and methods for carrying out variable rate and power control using interference measurements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lewis G. West whose telephone number is 703-308-9298. The examiner can normally be reached on Monday-Thursday 6:30-5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2682

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lewis West  
(703) 308-9298  
March 12, 2004



LEE NGUYEN  
PRIMARY EXAMINER